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SPECIAL ARTICLE

Ancient Coins and Medicine

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ANCIENT Lydian merchants produced the first coins in the 7th century B.C. These were crude discs of inconstant weight, made from a mixture of gold and silver (electrum). With the expansion of trade, the local heads of state produced coinage of uniform weight and value. Their site of origin was identified by a suitable local symbol, such as an animal or a god. A portrait of the favoured local deity on the obverse† gave the coin a reverend as well as utilitarian value; in some instances the temple served as mint and treasury. The gold and silver content of electrum varied and in 561 B.C., Lydia replaced electrum with pieces of silver or gold. This practice was soon adopted by other states. Coins were struck by hand (Fig. 1). "Off centres" occurred when the coin blank was improperly placed and double impressions resulted when a repeat strike was given. Vast numbers of coins were minted, and many of these may be purchased today for less money than collectors must pay for Canadian coins of the past 40 years. A rough estimate of coin numbers can be gathered from Livy's report of the booty taken to Rome after the plundering of Heraclea: "3000 lb. of silver bullion, 113,000 minted Attic four-drachma pieces, cistophori to the number of 249,000."[13]

At the beginning of numismatic history, Asclepius, the god of medicine, was a minor deity serving the needs of itinerant Greek physicians.[18, 20] In the 6th to the 4th century B.C., at Tricca in Thessaly and Epidaurus in the Peloponnesus, the practice of medicine was combined with a religious association in the cult of Asclepian temple medicine. The Asclepian cult adopted all that was best in current Greek scientific medicine and combined with it the counterpart of today's hospital, rehabilitation and spa services, as well as the powerful effects of suggestion and religion. Although Hippocrates and his students at Cos were Asclepiads, they did not practise the Asclepian temple medicine. As the influence of the Asclepian cult grew, the god of medicine became the principal deity in many areas. This is reflected numismatically on the coins of many centres. These serve to identify the site of temples, and Table I lists cities of the Greek world which minted coins bearing various Asclepian associations.

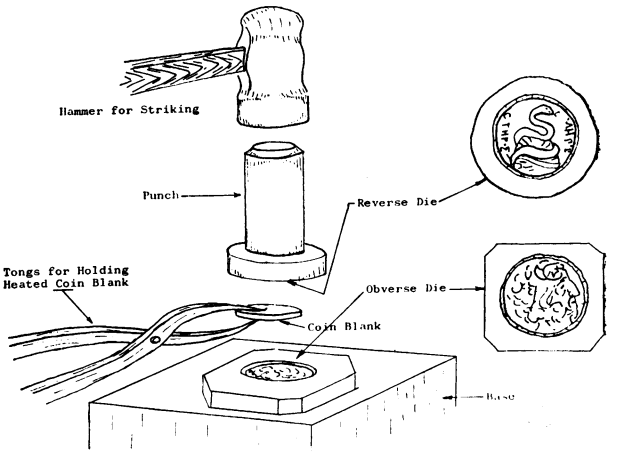

Fig. 1.—Diagrammatic sketch of the method used in striking ancient Greek and Roman coins.[3, 5]

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†The sides of a coin are referred to as obverse and reverse, *viz.* head and tail.

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TABLE I.—ASCLEPIAN TEMPLE SITES LOCATED BY COINS*

Mysia
1. Adramyteum
2. Attæe
3. Cyzicus
4. Hadriani
5. Hadrianothera
6. Germe
7. Pergamum
8. Perperene

Thessaly to Ætolia
9. Dyrrhachium
10. Larissa
11. Nicolopolis
12. Thessaly
13. Tricca

Macedon
14. Macedon in general (late)

Caria and islands
15. Alabanda
16. Apollonia Salbace
17. Astypalæa
18. Aphrodisias
19. Attuda
20. Bargasa
21. Bargylia
22. Cos
23. Cnidus
24. Euippe
25. Heraclea Salbace
26. Rhodus
27. Trapezopolis

Parthia
none

Pontus, Paphlagonia, Bithynia, Kingsom of Bosphorus
28. Amasia
29. Amisus
30. Abonitichus
31. Heraclea
32. Nicæa
33. Nicomedia
34. Prusa ad Olympus
35. Tium
36. Bithynium
37. Prusias ad Hypium

Peloponnesus
38. Argos
39. Asine
40. Cyparissia
41. Epidauris
42. Gytheium
43. Las
44. Mantineia
45. Messenia
46. Orchomenus
47. Patræ
48. Ægium

Lydia
49. Acrasus
50. Attalea
51. Bagis
52. Cilbiani
53. Dioshieron
54. Daldis
55. Germe
56. Gordus Julia
57. Hermocapelia
58. Hypæpa
59. Hyrcanis
60. Magnesia
61. Nacrasa
62. Philadelphia
63. Saitta
64. Stratonicea
65. Thyatina
66. Tripolis

Palestine
67. Neapolis
68. Tiberias
69. Ælia

Troas, Æolis and Lesbos
70. Antandrus
71. Ægæ
72. Came
73. Cyme
74. Elæa
75. Pordosilene
76. Mytilene
77. Lesbos

Corinth
78. Corinth

Attica
79. Athens
80. Megara

Central Greece
none

Phœnicia
81. Berytus
82. Carne
83. Sidon

Ptolemaïc Kings of Egypt
None

Cyprus
None

Seleucid Kings of Syria
None

Phrygia
84. Acmoneia
85. Æzanis
86. Alia
87. Amorium
88. Bruzus
89. Cadi
90. Cibyra
91. Cidyessus
92. Colossæ
93. Cotiæum
94. Dionysopolis
95. Docimeium
96. Eucarpeia
97. Hieropolis
98. Hierapolis
99. Laodiceia
100. Midæum
101. Otrus
102. Peltæ
103. Prymessus
104. Sebaste
105. Stectorium
106. Synaus
107. Synnada
108. Themisonium
109. Tiberiopolis
110. Trajanopolis
111. Apameia

Italy
112. Rhegium
113. Metapontium

Arabia, Mesopotamia and Persia
114. Esbus

Sicily
115. Agrigentum
116. Syracuse
117. Selinus
118. Menænum

Crete and Ægean Islands
119. Amorgas

Alexandria
120. Alexandria

Lycia, Pamphylia and Pisidia
121. Perga
122. Side
123. Conana
124. Ariassus
125. Etenna
126. Apollonia Mordiæum
127. Termessus Major
128. Seleucia
129. Selge

Ionia
130. Cladzomenæ
131. Erythræ
132. Smyrna

Lycaonia, Isauria and Cilicia
133. Elæussa—Sebaste
134. Epiphanea
135. Irenopolis
136. Mopsus
137. Tarsus
138. Parlais
139. Pompeiopolis
140. Ægeæ
141. Colybrassus

Thrace
142. Marcianopolis
143. Nicolopolis
144. Tomi
145. Anchialus
146. Deultum
147. Hadrianopolis
148. Maronea
149. Pautalia
150. Philippopolis
151. Plotinopolis
152. Serdica
153. Bizya
154. Trajanopolis
155. Dionysopolis
156. Nicopolis
157. Mesembra

Galatia, Cappadocia and Syria
158. Ancyra
159. Pessinus
160. Tavium
161. Tyana

Cyrenaica
162. Balagræ

*Arranged according to the Geographic Organization of the British Museum Catalogues of Greek Coins.

THE ASCLEPIAN MYTH

Greek coins were replete with mythology, and different issues illustrate the principal personages concerned in the story of the god of medicine. Asclepius is portrayed on hundreds of coins. His bearded authoritative face is shown in Fig. 2.

Fig. 2.—The bearded head of Asclepius on a coin of Cos, 166-88 B.C.

Asclepius is also shown standing or sitting; he wears a himation which is draped over his left arm and exposes his chest (Fig. 3)—not a very practical raiment for a busy physician. The portrait of his father, Apollo, is common (Fig. 4); however, his mortal mother, Koronis, appears only once and this is on a coin of Pergamum issued by Hadrian's childless wife, Sabina (Fig. 5). (Was this an ancient attempt at solving an infertility problem?) Koronis while pregnant with Asclepius was unfaithful to Apollo, and the white raven bore this news to the god; Apollo was so angered that he killed the pregnant mother by an arrow (the bow and quiver is frequently used as an Apollonian symbol). Apollo regretted his rash act and

Fig. 3.—Asclepius wearing a himation, accompanied by his daughter Hygieia.

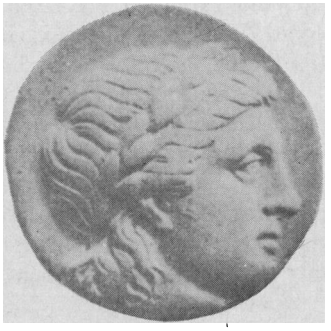

Fig. 4.—Apollo, father of Asclepius.

Fig. 5.—Koronis, mother of Asclepius.

delivered by Cesarean section his child from the womb of the dead Koronis. In grief and anger he punished the informing raven by turning it from white to black—a raven is also used numismatically to symbolize Apollo (Fig. 6). The motherless child

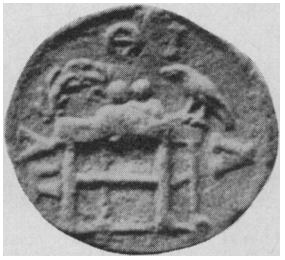

Fig. 6.—The raven, symbolic of Apollo.

Fig. 7.—The centaur, Chiron.

was given to Chiron the centaur (Fig. 7), who raised him and taught him the arts of medicine. The Epidaurian legend differed from this in that

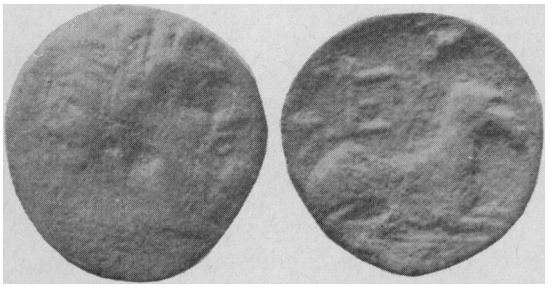

Fig. 8.—A coin of Epidaurus showing Asclepius and a large dog.

it tells of the child being raised by a goat and guarded by a dog. This too is reflected numismatically, as a coin of Epidaurus shows a large dog on the reverse of the Asclepian head and another coin shows a dog lying at the god's feet (Fig. 8). Asclepius' medical powers were aided by Athena (Fig. 9), who gave him some of the Gorgon's blood (Fig. 10); owing to this (? a transfusion) he was able to resuscitate the dead. Hades (Fig. 11), god

Fig. 9.—Athena.

Fig. 10.—The Gorgon whose blood enabled Asclepius to revive the dead.

Fig. 11.—Hades, god of the underworld.

of the underworld, complained to Zeus that the physician was depopulating his realm. Asclepius was punished by Zeus with a bolt of lightning for tampering with natural laws (Fig. 12). After deification, he renounced raising the dead but retained his right to receive gold.

Fig. 12.—Zeus hurling a thunderbolt.

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Asclepius' wife, Epione, is shown on an early coin of Epidaurus, pouring from a vial into a patera (as doctors' wives today help with the chores of practice) (Fig. 13). He had two sons,

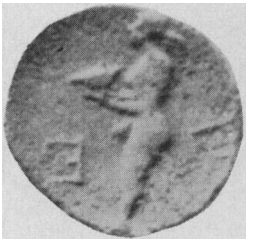

Fig. 13.—Epione, wife of Asclepius.

Machaon and Podalarius, one of whom is shown dressed as a warrior on a coin of Tricca. Both sons were physicians and in the *Iliad* they took part in the Trojan war (at the head of the Thessalians of Tricca). Asclepius had four daughters, and it is of interest that numismatically only one is illustrated—Hygieia or Health. Perhaps in that age Panacea or Cure-All was too esoteric even for the Greeks. Iaso and Oegle do not appear numismatically; perhaps they married early or revolted from dedication to healing.

ASCLEPIAN TEMPLE MEDICINE

History assigns Epidaurus and Tricca as the original sites of Asclepian temple medicine. However, numismatic precedence goes to Larissa in Thessaly where a coin of 450-400 B.C. shows Asclepius feeding a serpent (Fig. 14). This

Fig. 14.—A coin of Larissa portraying Asclepius feeding a serpent—the first Asclepian coin, 450-400 B.C.

indicates that it was here that the medical cult first gained sufficient prominence to appear on coins, whereas Tricca portrayed the god of medicine in 400-344 B.C. and Epidaurus in 370 B.C. (Fig. 15). The Triccan and Epidaurian sanctuaries certainly existed before these dates, but Asclepius did not

Fig. 15.—Asclepius on coins of Epidaurus.

possess significant stature to appear on coins. The custom of local minting by cities in the Greek and Eastern Roman Empire has enabled the listing of the temple sites recorded in Table I. Coins show that the following sanctuaries were established before the birth of Christ: Pergamum; Dyrrhachium (probable); Larissa; Tricca; Astypalaea; Cos; Epidaurus; Lesbos; Caine; Rhegium; Metapontium; Agrigentum; Syracuse; Selinus; Amorgos and Menaenum.

Coinage of the mid Roman Imperial period (2nd and early 3rd centuries) reveals a great upsurge in popularity of Asclepius. Many coins appeared during the reign of Commodus (A.D. 180-192) and Septimus Severus (A.D. 193-211), an emperor who according to Sir Mortimer Wheeler suffered from gout. These issues frequently appear during the

Fig. 16.—A general issue denarius of Caracalla (A.D. 197-217), showing Asclepius with the staff and serpent on the reverse.

reign of Caracalla (A.D. 198-217) when Asclepius appears on both local coinage as well as on a standard general issue denarius (Fig. 16). Table II lists the Roman emperors who minted Asclepian coins. Some had many issues from each of many centres, while others had a single issue from one mint.

TABLE II.—ROMAN EMPERORS, EMPRESSES AND CAESARS WHO HAVE BEEN DEPICTED WITH ASCLEPIAN COINS

Domitian	A.D. 81 - 96	Macrimus	217 - 218
		Diadumenian	217 - 218
Trajan	98 - 117		
Hadrian	117 - 138	Elagabalus	218 - 222
Sabina	117 - 137	Alexander Severus	222 - 235
Ælius Cæsar	136 - 138	J. Mamæa	
Antoninus Pius	138 - 161	Maximinus	235 - 238
Marcus Aurelius	161 - 180	Maximus	
Faustina II	146 - 175	Gordian III	238 - 244
Lucius Verus	161 - 169	Philip I	244 - 249
Lucilla	161 - 183	Philip II	247 - 249
Commodus	180 - 192	Trajan Decius	249 - 251
Albinus Cæsar	193 - 197	Etruscilla	
Septimus Severus	193 - 211	Hostilian	251 - 251
J. Domna	193 - 217	Vallerian	260 - 268
Geta	211 - 212	Gallienus	260 - 268
Caracalla	211 - 217		
Plautilla			

It is difficult to understand the absence of Asclepian issues from the early Macedonian coinage. This was the home of Alexander the Great, who was a devotee of Asclepius. (The Edelstein Testimonies include an inscription by Arrianus that at Soli, Alexander sacrificed to Asclepius and that his army staged a procession and relay race as well as athletic and literary competitions; also Pausanias records that Alexander dedicated his spear and breast plate to Asclepius.)

The absence of issues from Central Greece may be explained by the numismatic predominance of Delphi.

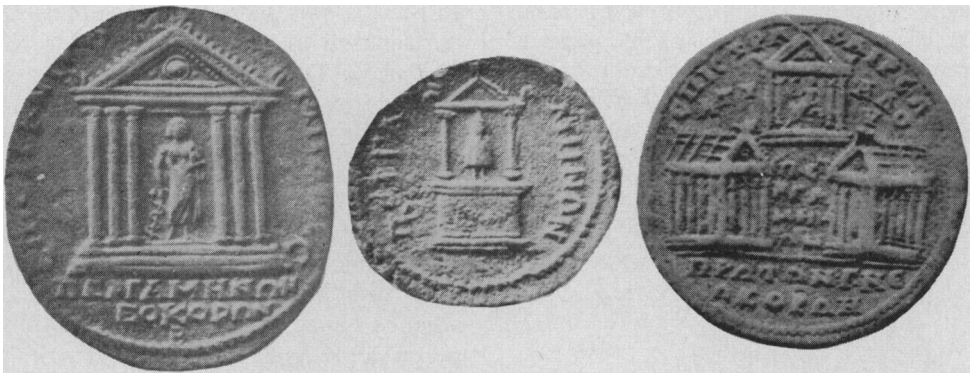

Fig. 17.—These coins show the architectural style of various Asclepian temples at Pergamum.

The absence of Asclepius from Parthian coins may be related to the proximity of Parthia to India. Perhaps Parthian medicine was influenced by India rather than Greece.

Unfortunately the financial crash which occurred during the reign of Gallienus (A.D. 253-268) resulted in a change of imperial minting policy.[6] A uniform coinage was adopted for the entire Eastern Empire and all the local mints with their local archeological colour were closed. If this had not occurred, we could have traced numismatically the decline of the Asclepian cult.

Fig. 18.—The temple key at Pergamum.

This new policy had long been in effect in the western parts of the Empire, where a standard coin was minted only at certain centres. This precluded local religious colour on the coins of the western provinces, and it is not possible to identify the sites of western provincial sanctuaries.

A variety of coins portray the local sanctuaries; architecturely they were standard hexastyle, tetrastyle or bistyle classical temples. Pergamum coins emphasize the size of this centre by showing buildings of each style (Fig. 17). A Pergamum coin, showing the temple key, reveals that at times the compounds were locked (Fig. 18).

The snake was symbolic of Asclepius from early times; however, the serpent played an active role in temple medical practice. It slithered around the sanctuaries and assisted in healing by licking the affected part. Serpents appear on most Asclepian issues. They are portrayed encircling the staff of Asclepius or rising from the altars, entwined around altar lamps or in trees. One issue shows Asclepius feeding the serpent a bird (the sacrifice of a cock in ancient Greece was thought to prevent illness and to make childbirth easy). Hygieia (Health) is also frequently portrayed feeding a serpent. An interesting coin type shows the serpent encircling an omphalos; this umbilicus was symbolic of the prophecies of the Delphic Oracle and presumably had a prognostic role in temple medicine. The altars that are shown usually have an association with serpents (Fig. 19).

Fig. 19.—Serpents associated with Asclepius. Other varieties are seen accompanying some of the other illustrations.

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Sacrifices were offered, and although the god was easily satisfied by simple offerings, Pergamum coins show a tethered bull being struck on the head, as well as Asclepius inspecting a bull's hoof (a form of meat inspection?) (Fig. 20). Incense was burned in the temples as shown on Epidaurian coins depicting a thymiaterion (Fig. 21—left).

Fig. 20.—The sacrifice of a bull to Asclepius.

Cupping for blood-letting or counter-irritation was practised by temple physicians, and a coin from Epidaurus shows a cupping vase (Fig. 21—right).

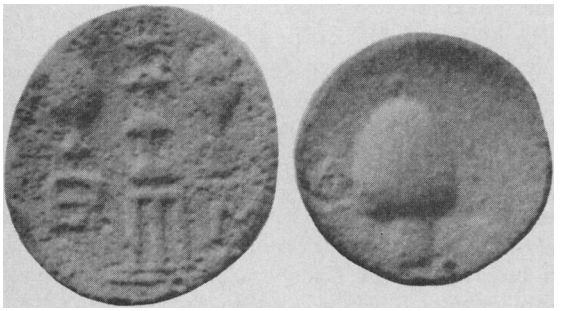

Fig. 21.—A thymiaterion used for burning incense and cupping vases used for blood-letting or counter-irritation.

Telesphoros, the guardian spirit of convalescence, is portrayed on many issues as a small figure wearing a hooded cape—the costume of those recovering from illness (Fig. 25—right).

Other gods sometimes accompany Asclepius on coins (Fig. 22). The association with Demeter was real. She dealt with the mysteries of life and death, and the fourth day of the week of her celebrations at Eleusis was sacred to Asclepius. Demeter gave the fig tree to Attica and forbade the cultivation of beans. (Did she, perhaps have insight into the erythrocyte glucose-6-phosphate dehydrogenase deficiency still common in Mediterranean peoples and which gives rise to severe hemolysis following ingestion of the fava bean?) Tyche, or Fortune, also appears with Asclepius; this too seems a permissible alliance. Other gods which appeared with him had political symbolism, such as the alliance issues of Pergamum and Ephesus with the portrayal of Asclepius, symbolic of Pergamum, and of Artemis, symbolic of Ephesus.

Fig. 22.—Demeter.

THE ASCLEPIAN GAMES

Throughout antiquity games were held in honour of the gods. All types of sporting contests were dedicated to Asclepius, the giver of health and liberator from disease. Later these festivals incorporated music and drama as well as medical competitions. Sidon (rival city of Tyre) in Phoenicia celebrated games sacred to Asclepius, and a coin from that city shows the prize crown standing on a table (Fig. 23).

Fig. 23.—The crown of victory for the Asclepian Games held in Sidon.

FEE FOR SERVICE

The Asclepian temple medical practice had a fee structure not unlike that existing on the North American continent today. Those unable to pay received the same treatment as the more affluent (as today's hospital outpatient department and in-hospital public ward service are run by the attending hospital staff without remuneration). Those able to pay had a moral responsibility for their fees (money, votives* and goods). Asclepius was militant in his collection of fees, in that a delinquent patient might be punished by the god, reversing his healing and inflicting further suffering. The Edelstein Testimonies describe a man cured of his blindness by the god made blind once again upon default of fee, and also a fisherman who did not pay his promised offering of fish and was bitten by them until he completed his bargain.

*Grateful patients gave to the temples votives which portrayed the healed part.

COINS OF COS

The island of Cos has a special significance in medical history. It was the birthplace of Hippocrates, the Father of Clinical Medicine, and it was here that he taught. He was an Asclepiad (an allegorical descendant of Asclepius, as were all ancient Greek physicians). Asclepian temple medicine did not reach the island of Cos until many years after Hippocrates; however, this famous physician magnified the importance of the Coan sanctuary. This is confirmed numismatically, as early Coan issues depicted a crab, symbolic of the predominant deity, Hercules. (The crab today has non-related medical connotation with cancer.) The head of Asclepius replaces that of Hercules in 166 B.C., which indicates the approximate date that Asclepius became the predominant deity of the Island. An interesting series of coins after 55 B.C. depict the heads of two famous Coan physicians—Hippocrates and Xenophon (Fig. 24). The former

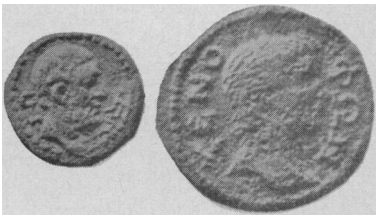

Fig. 24.—Two famous Coan physicians—Hippocrates and Xenophon.

needs no explanation but the latter does not possess equivalent stature in present medical history. It is known that he was physician to Claudius, who granted special privileges to Cos. Did he possess political fame only or have writings of his medical works been lost?

In the time of Hippocrates (460-377 B.C.) the island medical school of Cos was rivalled by the neighbouring mainland medical school of Cnidus. Coinage from Cnidus honours Aphrodite except for a single issue which portrays Asclepius in the dubious company of the goddess of love and Caracalla. This assigns a late date and minor importance to the Cnidian Asclepian sanctuary.

Separate Coan issues cease in A.D. 217 and the subsequent fate of their centre cannot be traced further from coins.

COINS OF PERGAMUM

Pergamum was the third most important Asclepian centre and its coins are a permanent tribute to the cult. Archias introduced Asclepius to the city in 350 B.C.; however, the cult did not reach immediate prominence and there were no Asclepian issues until 200 B.C. During the period of ascendancy Hercules and Athena were revered; these deities, as well as Dionysus, Demeter, Nike, Hermes and deified Emperors, continued a minor numismatic and religious association with the city during the 400 years of Asclepian predominance. Coinage issued from Domitian (A.D. 81-96) to Gallienus (A.D. 253-268) was predominantly Asclepian. The issues end with Gallienus, which may give numismatic confirmation of the disastrous destruction of the temple by an earthquake (circa A.D. 253-260). However, during this reign inflation necessitated radical monetary reform; these measures closed all the local eastern mints.

Caracalla's visit to Pergamum in A.D. 214 is recorded numismatically. His trip may have been prompted by a battle wound. There are coins portraying him in military dress with Asclepius and also an issue showing Caracalla saluting the snake, with a statue of Telesphoros in the background (this little hooded figure was the guardian of convalescence) (Fig. 25). Perhaps these numerous

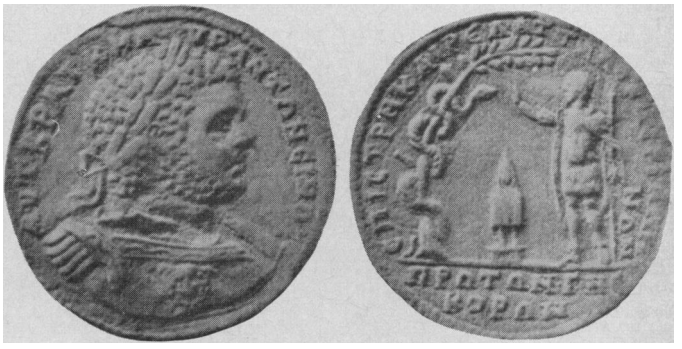

Fig. 25.—Caracalla saluting the serpent of Asclepius, with the figure of Telesphoros in the background.

commemorative issues represent a testimony of gratitude—especially if many of them were given as payment to the sanctuary.

The reign of Caracalla was marked by cruelty and extravagance. The profusion of numismatic association with the god of medicine should have been embarrassing to a cult which healed only those who were pure and who did not suffer from illness due to excesses.

A unique Pergamum issue shows Asclepius standing with his staff and snake. On his left is a small naked figure and between them a rat gnawing an unidentified object (Fig. 26). The presence of the rat has perplexed numismatists. Wroth,[7] in 1882,

Fig. 26.—Asclepius standing with a staff and snake and a rat at his left foot.

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interpreted the rat as symbolic of Apollo and signified Asclepius' link with this god. An alternative explanation has an interesting medical interpretation: The temples housed many sacred snakes; the *Elaphe longissima* is a rodent-eating variety and undoubtedly rid the temple sites of rodents. Was this coincidence or did the ancients have an insight into the epidemiology of disease and the part played in its spread by rodents? Asclepian temple medicine provided an ideal setting for the crowds of sick persons. Good food, water, air, exercise, rest and reassurance supplemented their cures effected by time, magic and medicine. Did the serpents prevent further spread of disease in the temple compounds? Interesting support for this is provided by the story of the introduction of Asclepius to Rome in 292 B.C. At that time an uncontrolled epidemic was raging, and the city fathers sent to Epidaurus for help from Asclepius. He came to the city in the form of a snake and cured the epidemic. Were many rodent-eating snakes brought to the city and the epidemic arrested by ridding the city of plague-spreading rats?

The importance of the Pergamum sanctuary in the Roman period is emphasized by the following imperial portraits appearing with Asclepian associations: Domitian, Hadrian, Sabina, Aelius, Caesar, Antoninus Pius, M. Aurelius, Faustina II, L. Verus, Commodus, Severus, J. Domna, Caracalla, Severus Alexander, J. Mamaea, Maximus, Masiminus, Gordian III, Trajan Decius, Etruscilla, Valerian I, and Gallienus.

THE DECLINE OF THE CULT OF ASCLEPIUS

The change in the imperial minting policy introduced by Gallienus (A.D. 260-268) resulted in standard coinage throughout the Roman Empire.[6] Asclepius and other local deities were replaced by national gods and various personifications. At the time of Constantine, prior to his adoption of Christianity, the sun god, Sol Invictus, appears on coinage throughout the Empire (Fig. 27). The sun is no longer equated with Apollo but with the Eastern cult of Mithraism. From this numismatic evidence it is surprising to read that the principal Christian historians of the time still feared most the Asclepian cult. Lactantius and Eusebius declare Asclepius to be the arch-demon and one who draws men away from their true saviour.

Fig. 27.—The sun god, Sol Invictus.

The cult of Asclepius has an ignominious numismatic adieu. A coin of Constantine minted in Constantinople shows the Christian symbol surmounting a standard which in turn stands on a snake (Fig. 28). This coin has been interpreted as a symbol of Christianity triumphing over evil;[15] however, this is probably wrong. The coin was distributed in an area which for centuries had coins bearing a snake symbolic of the pagan god of medicine. The adoption of Christianity as the official religion and the official approval for the use of Asclepian sanctuaries as quarries for Christian churches can leave little doubt about its symbolism. If this is correct, this coin might have been minted

Fig. 28.—The Christian symbol surmounting a standard, which in turn stands on a snake.

in A.D. 331 as a mark of Constantine's destruction of the Asclepian sanctuary at Aegae.[16] Even with the reign of Emperor Julian (A.D. 355-363), who attempted to resurrect the pagan religions, no further Asclepian issues appeared.

The establishment of Christianity resulted in a drastic change in medical practice. Christ became the healer, and Greek scientific medicine was replaced by the preternaturalism of Christianity.

PHARMACOLOGY AND ANCIENT COINS

The "scruple" (20 gr.) of the apothecary system of weights originates from the Roman *scrupulus*. This was the smallest unit of weight and equated 1/288th of an as (the as of Roman bronze currency began at 10 ounces and was gradually reduced to two ounces).

Fig. 29.—Roman balance scales.

The Roman denarius was also used as a unit of weight. This coin first appeared in 187 B.C. and weighed 4 scruples (80 gr.) of pure silver. Throughout Roman history this coin underwent a series of debasements of both weight and silver content. During the reign of Augustus (27 B.C.-A.D. 14) the coin weighed 61.64 gr.; while the denarii of Nero (A.D. 54-68) weighed 52.65 gr.

This fluctuation in weight would complicate the ancient prescriptions such as the one against snake bite described by Pliny (A.D. 23-79). This prescription was originally recorded in verse at the Asclepian Sanctuary of Cos:[17]

"Take 2 denarii of wild thyme, and the same quantity of opopanax and meum respectively; 1 denarius of trefoil seed; and of aniseed, fennel seed, ammi and parsley, 6 denarii respectively, with 12 denarii of meal of fitches."

The compounds were weighed out on balance scales, which are illustrated on coins depicting Aquitas (fair dealing) (Fig. 29).

Coins from Cyrenaica in Africa illustrate dramatically ancient herbal medicine (Fig. 30). The now extinct umbelliferous plant, silphium, grew only in Cyrenaica. The juice of the plant was used extensively as a condiment and medical stimulant; the stalk was eaten as a vegetable. The plant appears on coins of the 6th century B.C. and predominated on all Cyrenaican issues for 300 years. Its appearance rapidly decreased and it finally disappeared after Crassus (Triumvir of Caesar and Pompey, 60 B.C). This series of coins portrays the exploitation and final extinction of the species. There is disagreement about the final date of this, but the plant ceased to be a major source of revenue to the country in the 2nd century B.C.; Pliny mentions that a specimen was given to Nero as a curio. One can imagine the rising price the ancients paid for this prescription as the supplies became depleted.

Pharmacologically, silphium[9-11] is related to asafetida ("food of the gods", "devil's dung"). Evidence for this comes from Dioscorides, who described an Asian and a Cyrenian type of silphium or laser. The Ancient Winters considered the Cyrenian source to be best; import duties were levied by the Romans at Alexandria on the Indian and Persian varieties. This ancient link with Asia preserved silphium in the pharmacopeias; asafetida is described in Sanskrit and Arabic medicine and was introduced into continental European medicine. The juice is collected from injured roots and stems and is adulterated with powdered gypsum, flour or earth. The juice contains resin, gum and essential oil. It was used as a stimulant to the brain and gastrointestinal tract. It was recommended as a carminative in flatulent colic and as a laxative. The volatile oils were thought to be excreted via the lungs and to have value in asthma and bronchitis. In India a dose was taken daily in order to ward off malaria.

Fig. 30.—The silphium plant. A snake at the side indicates its medicinal use.

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Various coins portrayed the complete plant showing a strongly ribbed stem, crowned by a terminal umbel, pairs of leaves with wide bases and three terminal leaflets arise obliquely from the stem (Fig. 30). Axillary umbels also arise from the stalk. Other coin types show the fruit, leaf, umbel and root. Some of these coins had a coiled serpent appearing beside the leaves. This indicates medicinal usage and is perhaps the first example of advertising a proprietary medicine (Fig. 30).

The peoples of the ancient world believed that serpents were expert in the use of medicinal herbs. This is well illustrated by the coin of Sardis which portrays the Lydian legend of the hero Tylos (Fig. 31). Tylos was killed by the bite of a venomous snake; his protector, the giant Masnes, killed the snake and then witnessed the serpent's mate revive him by a spray of magic plant. Masnes then used the same plant to revive Tylos.

Fig. 31.—The legend of Tylos, Masnes and the serpent.

A coin of Prusium depicts a snake encircling a vase. This association may indicate that the vase was an ancient apothecary jar (Fig. 32).

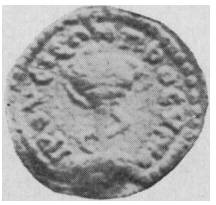

Fig. 32.—An ancient apothecary jar.

A bud of hellebore is shown on a coin of Pherae (Fig. 33). Hippocrates recommended this herb for its carminative and emetic action; he described convulsions resulting from overdosage. Celsus describes its use for mental excitement and insanity.

The poppy frequently appears on coins associated with the cult of Demeter. Perhaps its use contributed to some of the mystery and inspiration obtained by the cult.

Grapes appeared frequently on ancient coins; wine was used by Hippocrates as a diuretic and as a purgative in acute illness. The vintage sacrifice became sacred to Asclepius, and the cult of Dionysus frequently coexisted in cities with Asclepian sanctuaries.

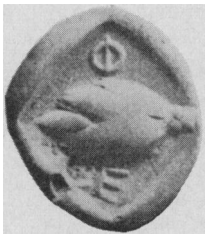

Fig. 33.—A bud of hellebore.

SALUS

Many of the Greek Gods were assimilated into the Roman way of life. Zeus became Jupiter; Athena became Minerva; Aphrodite became Venus; Hermes became Mercury; Hera became Juno; Hades became Pluto; Dionysus became Bacchus; Demeter became Ceres; Poseidon became Neptune, while Ares became Mars and Apollo was adopted without change. Heracles became latinized to Hercules and Asclepius became Aesculapius. Hygieia became Salus.

Fig. 34.—An early Roman coin depicting Salus.

Salus was the personification of health, welfare and safety. She appeared numismatically identical to her Greek counterpart and was frequently shown feeding a snake rising from an altar. Her role in public safety is depicted on a Roman coin at the time of the social war (90-89 B.C.). This was fought by local Italian states in order to gain equal citizenship with Rome. On this coin the head only is shown, and she has the harsh simple features characteristic of Roman coin art of the first and second centuries B.C. (Fig. 34). This also shows that artistically the Romans were still crude and had not yet achieved the degree of portraiture attained by the Greeks two centuries earlier. Another interesting Salus issue appears in the reign of Man. Acilius Glabrio (58-55 B.C.). The laureate head of Salus has more refined artistic detail and the reverse of the coin shows the personification of Valetudo (sickness and poor health) holding a serpent of human dimensions (the Asclepian temple snake, *Elaphe longissima,* could attain a length of four to five feet) (Fig. 35). This coin has additional interest as the Acilius *gens* claimed association with Archagathus, the first Roman phy-

Fig. 35.—Salus and Valetudo.

sician, who was given a shop to set up medical practice in the Via Acilia in 219 B.C.[12] Mattingly[6] suggests that this issue may have had a secondary allusion to the critical illness of Pompeius in 50 B.C.

Salus appears on general issues of imperial times, and it is of interest that she now has the Greek style and was issued by emperors who seemed to favour Asclepius, especially Commodus and Severus.

THE CADUCEUS

In Babylonian times serpents were symbolic of a supreme sex. This was depicted as two serpent heads arising from a single body and this symbol was the earliest caduceus. In Greco-Roman times the caduceus was portrayed by two mirror-image 3's surmounting a staff, or by two serpents encircling a staff (Fig. 36), and was associated with

Fig. 36.—A Roman caduceus.

Hermes (Mercury). On ancient coins it is also associated with Athena (Minerva), Diana, Gorgon, Demeter, Kore, Apollo, Felicity, Theseus, Roma, Tyche, and Artemis;[8] and appeared on coins of the following kings, emperors and moneyers: Antoninus Pius, Augustus, Claudius, C. Norbanus, C. Pansa, Domitian, Elagabalus, Gallienus, Geta, Gordian III, Gotarzes, Hadrian, Julius Caesar, Marcus Aurelius, Marcus Saeculi, Mark Anthony, Mussidia, Norbana, Philip I, Phraates IV, Plaetoria, Posthumia, Sepulia, Severus Alexander, Sicinius, Trajan, Vespasian, and Volagases. It was never associated with Asclepius.

When the Royal College of Physicians was founded in 1518, the insignia of the president was a silver mace bearing at its head the Arms of the Royal College, supported by four serpents (symbolic of prudence). This new emblem was also called the caduceus. An exact replica of it was presented by Lord Brain to the American College of Physicians in 1954.[19]

In 1902 a pagan caduceus was introduced into medical symbolism by the Medical Corps of the United States Army as an official symbol for noncombatant forces in the field. This symbol, also used by commerce and assorted industries, became on this continent equated with the medical profession and was included in the crest of medical colleges and medical publishers. The trend is now returning to correct medical symbolism as revealed on ancient coins.

THE TWIN SERPENTS OF ASCLEPIUS

The new mace of the American College of Physicians has at its head the Lamp of Wisdom, the Book of Knowledge, the Poppy and the Twin Serpents of Asclepius.

Fig. 37.—Eshmun-Asclepius standing between two horned erect serpents.

Occasionally two serpents appear on Asclepian coins, but these are in association with altar lamps. There is one coin from Berytus in Phoenicia which portrays Eshmun-Asclepius standing between two erect horned serpents (Fig. 37). This hybrid deity derives from the ancient Phoenician God of Medicine, Eshmun, who in Greco-Roman times became Eshmun-Asclepius. The twin serpents are not a constant feature, as he is shown also with a single snake encircling a staff. (This particular coin also shows the god wearing a Phrygian cap (Fig. 38), from which is derived the designation of the Phrygian cap deformity of the gallbladder.)

A coin of Geta shows a nude Asclepius standing between two erect serpents; however, most numismatic material does not portray the Twin Serpents of Asclepius.

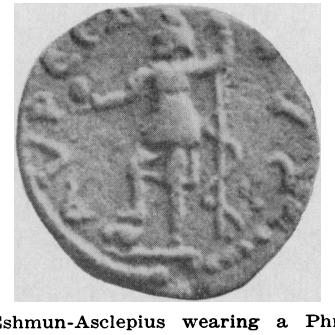

Fig. 38.—Eshmun-Asclepius wearing a Phrygian cap.

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DISEASES AND COINS

Ancient money does not portray the spectrum of disease and suffering found on pottery, paintings, carvings and statues.

A series of Parthian coins from 57 B.C.—A.D. 11 shows clearly a type of congenital tumour occurring about the head and neck of three generations of monarchs (Orodes I, Phraates IV, Vonones) (Fig. 39). These nodules are several millimetres in diameter and are located on the forehead, nose and neck. This lesion is undoubtedly a trichoepithelioma (Brooke's tumour). This tumour may be of a single or multiple type. The multiple type follows a pattern of dominant inheritance, while the single types do not show the familial trend. One can speculate that if the coin portraits had shown the other side of the face similar lesions would be seen. These coins are probably the first recorded cases of this lesion. The presence or absence of the lesion may help identify difficult specimens.

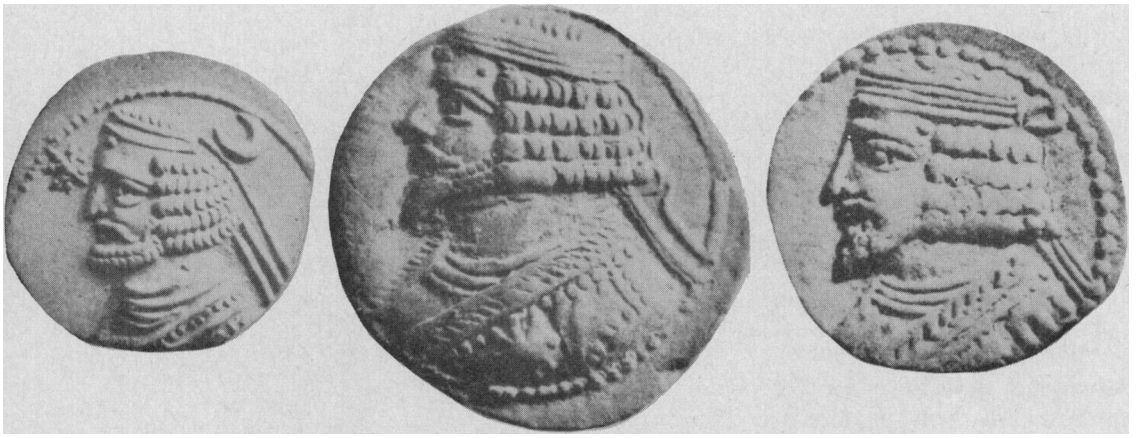

Fig. 39.—A series of Parthian coins depicting a tumour on the forehead of three generations of Parthian monarchs: Orodes I, Phraates IV and Vonones.

A coin of Cleopatra suggests the presence of a goitre and a medallion of Maximianus Herculius (A.D. 289-308) shows depression of the bridge of the nose (the result of fracture or syphilis?).[14]

Malaria control is commemorated by a coin from Selinus in Sicily. Empedocles (5th century B.C.) freed the city from malaria by draining a stagnant area of water. This is commemorated by the depiction of the local river god, Hyposas, sacrificing at the altar of Asclepius.

CONCLUSION

Ancient coins illustrate various aspects of medical legends. This review has listed 162 locations of mints portraying Asclepius; an Asclepian temple was probably located at each of these sites. Numismatically the worship of Asclepius can be traced to Larissa in 450-400 B.C., and coin issues reflect a great upsurge in the popularity of Asclepius during the second and third centuries A.D.

A congenital tumour has been noted in a series of Parthian coin issues, and other numismatic medical history has been reviewed.

A coin of Philippus Senior from Bizya shows that the ancient masters of the mint had an interest in medical history (Fig. 40). The reverse portrays Asclepius with serpent and staff; Apollo; Hygieia; Zeus with thunderbolt; Fortuna; Telesphoros and a serpent encircling an omphalos.

Fig. 40.—A coin of Philippus Senior from Bizya.

The author is indebted to the Trustees of the British Museum for permission to reproduce many of the illustrations in the text. The photographs were prepared by Mr. P. Milligan, Department of Medical Photography, Toronto East General Hospital, except for Fig. 40, which was prepared by the Photographic Department of the British Museum. Fig. 1 was prepared by Mr. Paul Ashley.

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